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QUERCUS RUBRA, L., var. TEXANA.

BY S. B. BUCKLEY, PH. D.

Quercus rubra is distributed over a larger area than any other oak in North America. According to Dr. Richardson, it is the most northern of oaks; he found it on the Saskatchewan and the rocks of Lake Namakeen, in British America. It is in Nova Scotia, and southward through the United States to El Paso County, in the northwest part of Texas. The writer saw it in the coves of the mountains near Fort Davis, in the summer of 1875, at elevations of from 5000 to 6000 feet above the sea. The differences of soil and climate in which it grows cause it to vary so much in size, wood, leaves and acorns that the two extremes of difference considered apart from intermediate forms, would make two very good species. The Texas form, growing on limestone hills and coves and little valleys in the vicinity of Austin and westward, has been called *Q. palustris* by Torrey and Gray, in the Report of the Botany of the Pacific Railroad, Report of Capt. John Pope, p. 173; also in other reports of theirs on the Botany of Texas. It has also been called *Q. palustris* by Dr. Engelmann, when he named the plants collected by Elihu Hall in Texas in 1872. (See Hall's *Plantæ Texanæ*, p. 21, Nos. 604 and 605.) Hall obtained specimens of it here in June, and I sent him acorns of it in the fall, and he informed me that Dr. Engelmann regarded it as *Q. palustris*. I have never seen the true *Q. palustris* farther south than the vicinity of Washington. Prof. Sargent and Mr. Mohr both inform me that they do not know of its being in the Southern States, and so says Michaux, in his "North American Sylva." It is not in Chapman's "Flora of the Southern States." These things in part, joined with the characteristics of the oak as growing here, caused me to describe it as a new species. (See *Q. Texana*, in Young's "Flora of Texas," p. 507.) If not a good species, it is a well-marked variety of *Q. rubra*. Let it then be called *Q. rubra* var. *Texana*.

Last December, Mr. Charles Mohr and myself got sections of its wood, etc., which he sent North for the Department of Forestry of the Government Census Bureau. We then thought it to be a good species. A few days after, on the bottom lands of Walnut Creek, about six miles below Austin, we found the acorns and

leaves of *Q. rubra* and also those of *Q. Texana* on and beneath the same tree; and also many intermediate forms. It was not only one tree, but many, which showed these differences.

Quercus rubra attains a large size in Eastern Texas; but west of the Trinity River it is seldom more than two feet in diameter. Its wood here is harder, firmer and better than that of the Northern red oak.

About two miles from Raleigh, North Carolina, on the Fayetteville road, in 1858, I measured a *Quercus rubra* which was 20 feet 8 inches in circumference at three feet from the ground. It was a low tree, with a remarkable spread of very large limbs, whose length on the south side was 72 feet and 71 feet. The longest on the north side was 66 feet. Near the base of its limbs at ten feet from the ground it was 27 feet in circumference. The circumference of the largest limb, at two feet from the trunk, was 9 feet 7 inches. Another limb was 7 feet 7 inches in circumference.

In September, 1859, I measured a *Q. rubra* in Wilcox County, Alabama, which was 24 feet 7 inches in circumference at three feet from the ground. It was a tall, well-developed, healthy tree. Another one not far distant was 18 feet 2 inches in circumference at three feet. In the town of Romulus, Seneca County, N. Y., I measured another, in 1865, which was 17 feet 2 inches in circumference at three feet high. Most of the large red oaks of the Northern States have been cut down to make staves for flour barrels, etc.